Using silica fume in concrete has been the subject of many studies for years. A comprehensive literature review on mechanical properties of silica fume concrete including compressive strength, splitting tensile strength, modulus of elasticity and flexural strength is presented. Furthermore, databases are created for mechanical properties of silica fume concrete in order to lead to changes or acceptance in design codes and standards provisions. Additionally, mechanical properties of silica fume concrete were compared with the American, European, Australian, Japanese and Canadian standards provisions. Results of this study show that existing code provisions for conventional concrete mechanical properties are conservative for silica fume concrete.